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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :
Juliette Quartararo : Group Art Unit: 1761
Serial No. 09/297,737 : Examiner: NORTON, NADINE GEORGIANNA
Filed: 05/04/2001 :

For : **CATALYST THAT COMPRISES AT LEAST ONE ELEMENT OF GROUP VIIB AND ITS USE HYDRO-TREATING**

DECLARATION UNDER 37 C.F.R. § 1.132

Honorable Commissioner
of Patent and Trademarks
Washington, D.C. 20231

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Sir :

I, Germain Martino, duly warned, declare and say as follows:

THAT, I am a French citizen; that I graduated from "Faculté des Sciences de l'Université de Strasbourg" (France) in 1961; that I obtained an Engineer Diploma from "Ecole Nationale Supérieure de Pétrole et des Moteurs" Rueil-Malmaison (France) in 1963; that I was received as a Doctor by "Université de Louvain" (Belgium) in 1965; and that I now reside in 78300 Poissy (France), 80 avenue Fernand-Lefebvre;

THAT, I was hired by "Institut Français du Pétrole" Rueil-Malmaison (France) in their Research Department to research on catalytic agents and catalytic reactions in May 1967; that, from January 1985 to September 1989, I was Manager of the Kinetics and Catalysis Research Division; that, from September 1989 to December 1997, I was Assistant Manager of the whole Refining and Petrochemical Division; and that since then I have been Manager of said Refining and Petrochemical Division.

I declare further: that I have supervised the following examples.

Example A

Supported [Ni+Re+B] catalyst C13

We took some of catalyst C4 described in Example 5 and added boron by dry impregnation in an aqueous medium using ammonium diborate. After dry impregnation, the extrudates were dried overnight at 120°C and calcined at 480°C for two hours in dry air. A catalyst C13 was obtained in which the final amounts of rhenium trioxide ReO_3 , nickel oxide NiO , boron oxide B_2O_5 were 12.8 % , 2.6 % , 4.1 % respectively.

Example B

Supported [Ni+Re+Si] catalyst C14

We took some of catalyst C4 described in Example 5 and added silicium by dry impregnation in an aqueous medium using a silicone oil containing siloxan polydimethyl, such as Rhodorsil (Rhodia). After dry impregnation, the extrudates were dried overnight at 120°C and calcined at 500°C for two hours in dry air. A catalyst C14 was obtained in which the final amounts of rhenium trioxide ReO_3 , nickel oxide NiO , silicon oxide SiO_2 were 11.43 % , 2.45 % , 3.21 % respectively.

Example C

Supported [Ni+Re+Mo+B] catalyst C15

We took some of catalyst C5 described in Example 6 and added boron by dry impregnation in an aqueous medium using ammonium diborate. After dry impregnation, the extrudates were dried overnight at 120°C and calcined at 480°C for two hours in dry air. A catalyst C15 was obtained in which the final amounts of rhenium trioxide ReO_3 , nickel oxide NiO , molybdenum oxide MoO_3 and boron oxide B_2O_5 were 12.4 % , 2.5 % , 3.05 % and 3.2% respectively.

Example D

Supported [Ni+Re+Mo+Si] catalyst C16

We took some of catalyst C5 described in Example 6 and added silicon dry impregnation in an aqueous medium using a silicone oil containing siloxan polydimethyl, such as Rhodorsil (Rhodia). After dry impregnation, the extrudates were dried overnight at 120°C and calcined at 500°C for two hours in dry air. A catalyst C16 was obtained in which the final amounts of rhenium trioxide ReO_3 , nickel oxide NiO , molybdenum oxide MoO_3 and silicon oxide SiO_2 were 12.1 %, 2.5 %, 3.0 % and 4.1 % respectively.

The supported catalysts described above were also compared in a hydrodesulphuration test for a gas oil, under the same conditions as described in example 14. Results are shown in following table :

Catalyst	Activity relative to JQ2	Composition
C4	2.2	(Ni+Re)/alumina
C5	2.6	(Ni+Re+Mo)/alumina
C6	2.7	(Ni+Re+P)/alumina
C7	3.4	(Ni+Re+Mo+P)/alumina
C13	2.9	(Ni+Re+B)/alumina
C14	2.75	(Ni+Re +Si)/alumina
C15	3.1	(Ni+Re +Mo+B)/alumina
C16	3.2	(Mo+Re+Mo+Si)/alumina

The performance of the catalysts containing both nickel and rhenium and boron for gas oil HDS was better than the performance of the catalyst not containing boron, as shown by the comparison between catalysts C4 and C13. The performance of the catalysts containing both nickel and rhenium and silicium for gas oil HDS was also better than the performance of the catalyst not containing silicium, as shown by the comparison between catalysts C4 and C14.

The simultaneous presence of non noble group VIII element, group VI and phosphorus has a positive effect (C7). The same effect is observed for catalysts wherein phosphorus has been replaced by boron or silicium (C15 and C16).

The undersigned declares further that all statements are made herein of his own knowledge are true and that all statements made on information and belief are believed to be true ; and further that these statements are made with the knowledge that willful false statements and the like so made were punishable by fine or imprisonment, or both under Section 1001 Title 18 of United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Handwritten signature of Germain Martino in cursive script.

Rueil, October 14, 2002

Germain MARTINO